

Chapter 5

Using Grids

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Using Grids

When samples are placed in a regular array such as dot blot or slot blot, a grid of circular or rectangular cells can be placed over the image to quantitate the activity.

This chapter describes how to set up a grid template using the **Grid Template Parameters** window. Each question in the window is described.

To set up a grid array over an image, you must first access the **Grid Template Parameters** window (Figure 5-1).

To access the **Grid Template Parameters** window:

- ☐ Select **Create Template** from the **Analysis** menu

Or:

- ☐ Select **CREATE** from the template bar.

The **Create Template** window is displayed.

- ☐ Select "Grid".
- ☐ Select **OK**.

The **Grid Template Parameters** window is displayed (Figure 5-1).

To analyze an image with a new grid template:

- ☐ Enter the number of rows and columns you want included in the grid.
- ☐ Enter a comment you want associated with the grid.
- ☐ Adjust the position and other parameters of the grid; either numerically in the window or graphically in the image (discussed later in this chapter).
- ☐ Set the report options to be used when a report is generated (see the Chapter *Reporting Results*, page GS101).
- ☐ Select **OK**.

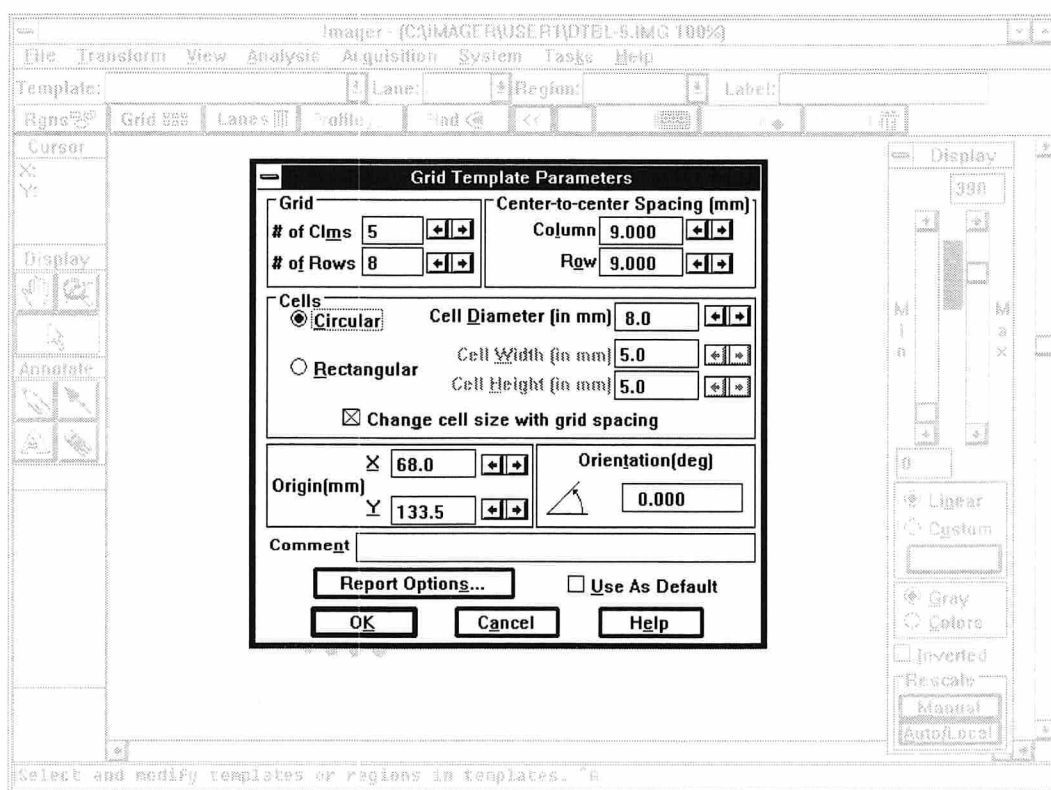


Figure 5-1. Grid Template Parameters Window.

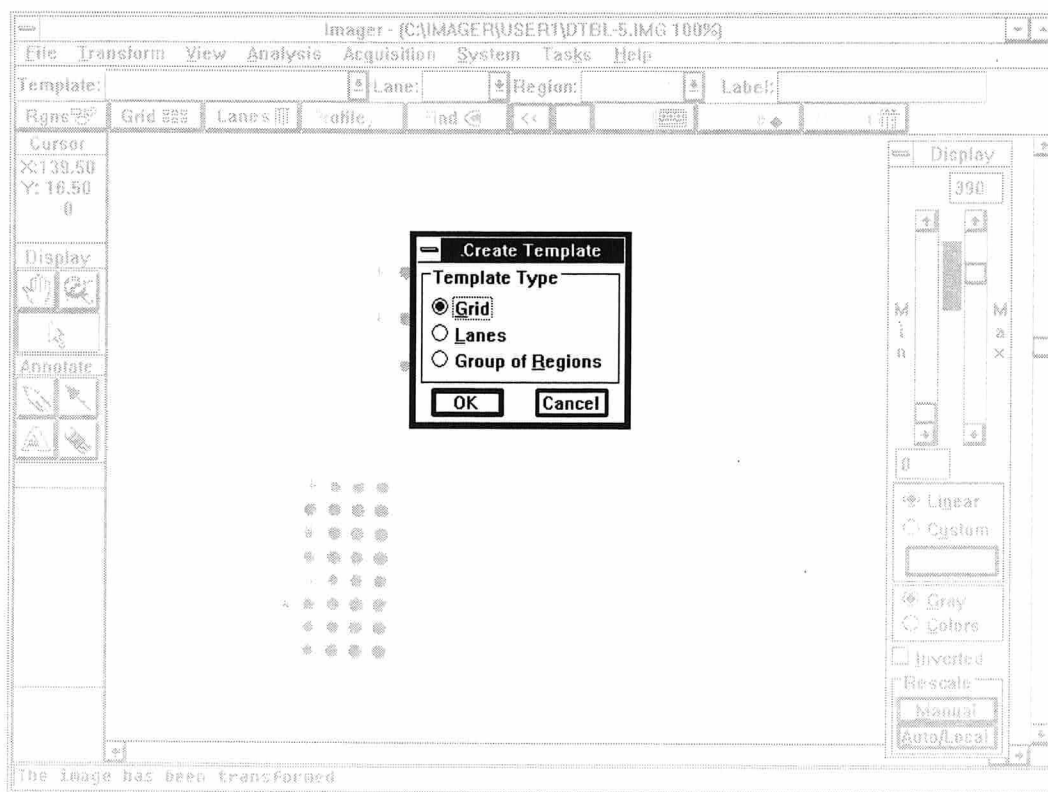


Figure 5-2. Create Template Window.

Using the Grid Template Parameters Window

You can use the **Grid Template Parameters** window (Figure 5-1) to create or modify a grid template.

When you have answered the questions in the window (described below), select **OK** to close the window and create the template over the image.

"T1" is displayed at the upper right corner of the first grid. If you created as second grid, "T2" would be displayed. T1 and T2 represent the template numbers; Template 1 (T1), and Template 2 (T2).

An example grid is displayed in Figure 5-3.

SELECTION

DESCRIPTION OF USE

Grid: #Clms #Rows

Enter the number of columns and rows for the grid by typing in the boxes or by selecting the arrows to increase or decrease the numbers.

Center-to-Center Spacing (mm):

Enter the spacing of the columns and rows (in mm). Alternatively, you can adjust the spacing graphically on the image.

Cells: Circular, Rectangular

Select circular or rectangular cells for the grid. Enter the cell diameter (in mm) for circular cells. Enter the cell width and height (in mm) for rectangular cells.

Change cell size with grid spacing

Select this box when you want the cells of the grid to change when you edit the overall size of the grid graphically on the image. When you select this option, the proportion of the cell size to the spacing will be maintained in the modified dimensions.

Origin: X,Y (mm)

Enter the coordinate of the position on the image where the center of cell A1 should be placed. Note that you can adjust the position of the template graphically after the template has been created.

SELECTION

DESCRIPTION OF USE

Orientation (deg)

If the sample is not placed in the instrument with a precise horizontal-vertical orientation, the orientation of the grid can be adjusted accordingly. The orientation of the grid can be entered numerically or edited graphically.

Comment

A comment can be attached to the grid. The comment will be printed when the results are printed with the template report.

Use as Default

Select this box when you want the parameters in the current grid parameters to be used as the default parameters each time you create a grid. The default parameters can be different for each user.

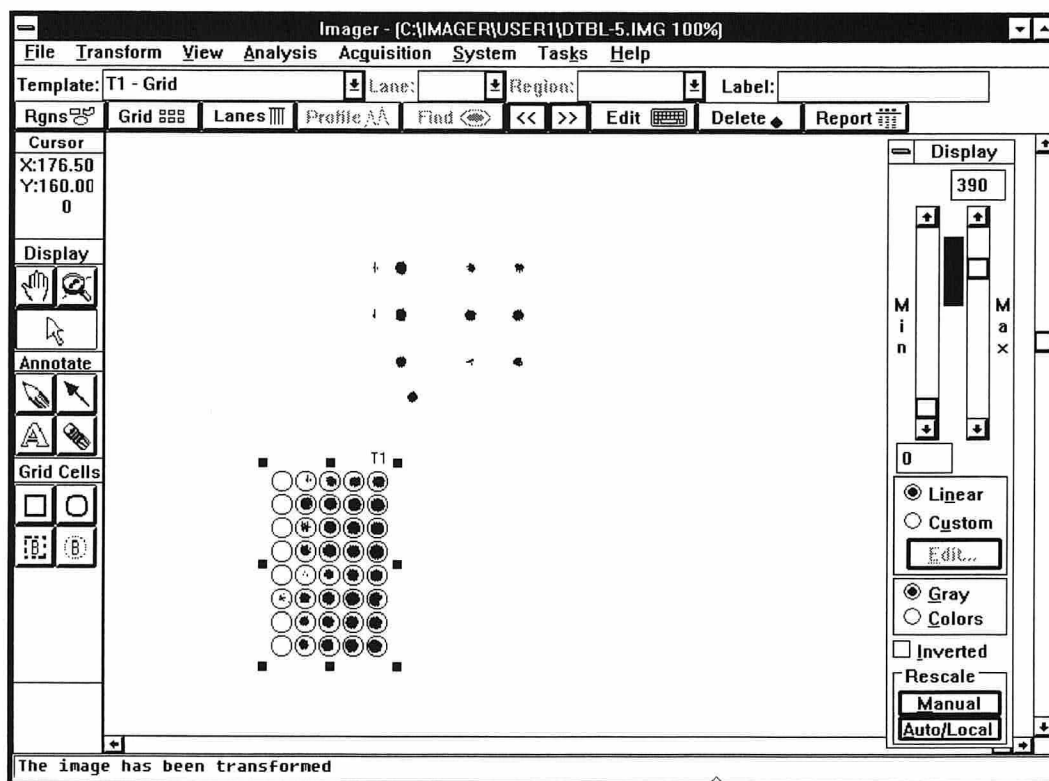


Figure 5-3. Grid Placed Over the Image.

Editing Grids Graphically

When a grid is the selected template object, it will be indicated in a distinctive color, and it will have editing handles for resizing and rotation.

You must use the pointer to edit a grid graphically:

- ☐ Select  in the display section of the tool box.

To select a grid:

- ☐ Select the template tag (T1, T2, etc.) with the pointing finger.

Editing handles are displayed around the grid.

The pointer will change when moved over the editing handles.

Move/Copy the Template

When the grid is selected, the pointer will become a move/copy cursor when moved over the grid.

The move/copy cursor looks like this: 

Press the left mouse button and drag the grid to a new location on the screen.

If you press the right mouse button, a copy of the grid will be dragged to the new location.

Rotate the Template

The pointer will become a rotation cursor over the rotation handle. The rotation handle is at the center of the upper right-hand cell.

The rotation cursor looks like this: 

The center of rotation is located at the center of the upper left-hand cell.

Press the left mouse button and while holding it down, move the mouse off the rotation handle. Rotate the grid to the desired location. When the mouse button is released, the grid will be redrawn in the new orientation.

Resize the Grid

The pointer will become a move cursor over the square resizing handles at the sides and corners of the grid.

The resizing cursor looks like this: 

Press the left mouse button and drag the edge or corner of the grid to the new position. The grid will be drawn with the new dimensions when the mouse button is released.

Resize the Cells

When you create a grid template, the Circle drawing tool and the Rectangle drawing tool become available from the tool box. You can use both of these tool to change the size or the type of the cells of the grid.

To change the size or the type of the cells of the grid:

- ☐ Select  or  in the tool box (these become available when a grid is created or selected).
- ☐ Draw the new cell size on the image.

To draw the new cell size on the image using the Circle drawing tool:

- ☐ With the Circle drawing tool, press the left mouse button to define the center of the circle (at the center of the dot), drag out the radius of the circle, and release the mouse button.

To draw the new cell size on the image using the Rectangle drawing tool:

- ☐ With the Rectangle drawing tool, press the left mouse button to define one corner of the rectangle.
- ☐ Drag the other corner of the template, and release the mouse button to define the opposite corner.

Editing Grids Numerically

Double click anywhere on the grid template tag to open the **Grid Template Parameters** window (Figure 5-1). You can edit the grid numerically or edit the comment attached to the grid template. If the grid is the selected template, you can click anywhere on the image to open the window.

See the section *Using the Grid Template Parameters Window* (Chapter 8 of the *Getting Started Manual*) for more information.

Background Subtraction

There are two tools available in the toolbox that enable you to define background areas for a grid template: the Background Region tool and the Background Cell tool.

Background Regions

Using the Background Region tool, you can define a rectangular background region anywhere on the image. The system will subtract the background in the region from each cell in the template. The background region subtraction can be reported if requested.

To create a background region:

- ☐ Select the Background Region tool from the toolbox . When the tool is selected, a small rectangle will trail the mouse pointer.
- ☐ Press the left mouse button to anchor the top left corner of the region.
- ☐ Drag the rectangle to the opposite corner of the region and release the mouse button. (Select <Esc> to cancel the process.)

The rectangular background region is drawn over the image.

Background Cells

Using the Background Cell tool you can define a selection of grid cells to be the background region(s). The system will subtract the background found in each cell from the remaining cells in the template. The background cell subtraction can be reported if requested.

There are two methods to select background cells: 1) Click the left mouse button on each cell, or 2) create a rectangular background region over the template. (All grid cells within this region will be affected.)

Selecting Individual Cells

You can specify one or more cells in the grid to be the background cells.

To select one or more cells:

- ☐ Double click on the Background Cell tool from the toolbox . (Double clicking enables you to select multiple cells). When the tool is selected, a small circle will trail the mouse pointer.
- ☐ Point to a specific cell and press the left mouse button. The perimeter of the cell will change to a dotted circle (or rectangle).

You can select as many cells as required.

To deselect a cell:

- ☐ Point to a background cell (dotted circle or rectangle) and press the left mouse button. The perimeter of the cell will change from a dotted circle (or rectangle) to a solid circle (or rectangle).

Create Background Region

You can define a rectangular background region directly over the grid template. Each grid cell that is enclosed in or touched by the rectangle will be included in the background region.

To create a rectangular region over the grid:

- ☐ Double click on the Background Cell tool from the toolbox . (Double clicking enables you to select multiple regions.) When the tool is selected, a small circle will trail the black mouse pointer.
- ☐ Press the left mouse button to anchor the top left corner of the region.
- ☐ Drag the rectangle to the opposite corner of the region and release the mouse button. (Select <Esc> to cancel the process.)

The background cells within the defined region will be enclosed in dotted circles or rectangles.

Reporting Results

See the Chapter *Reporting Results* in this manual for more information on reporting quantitative results obtained from the grid template.

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